

Alberta Dept. of Lands & Forests

Forest Service

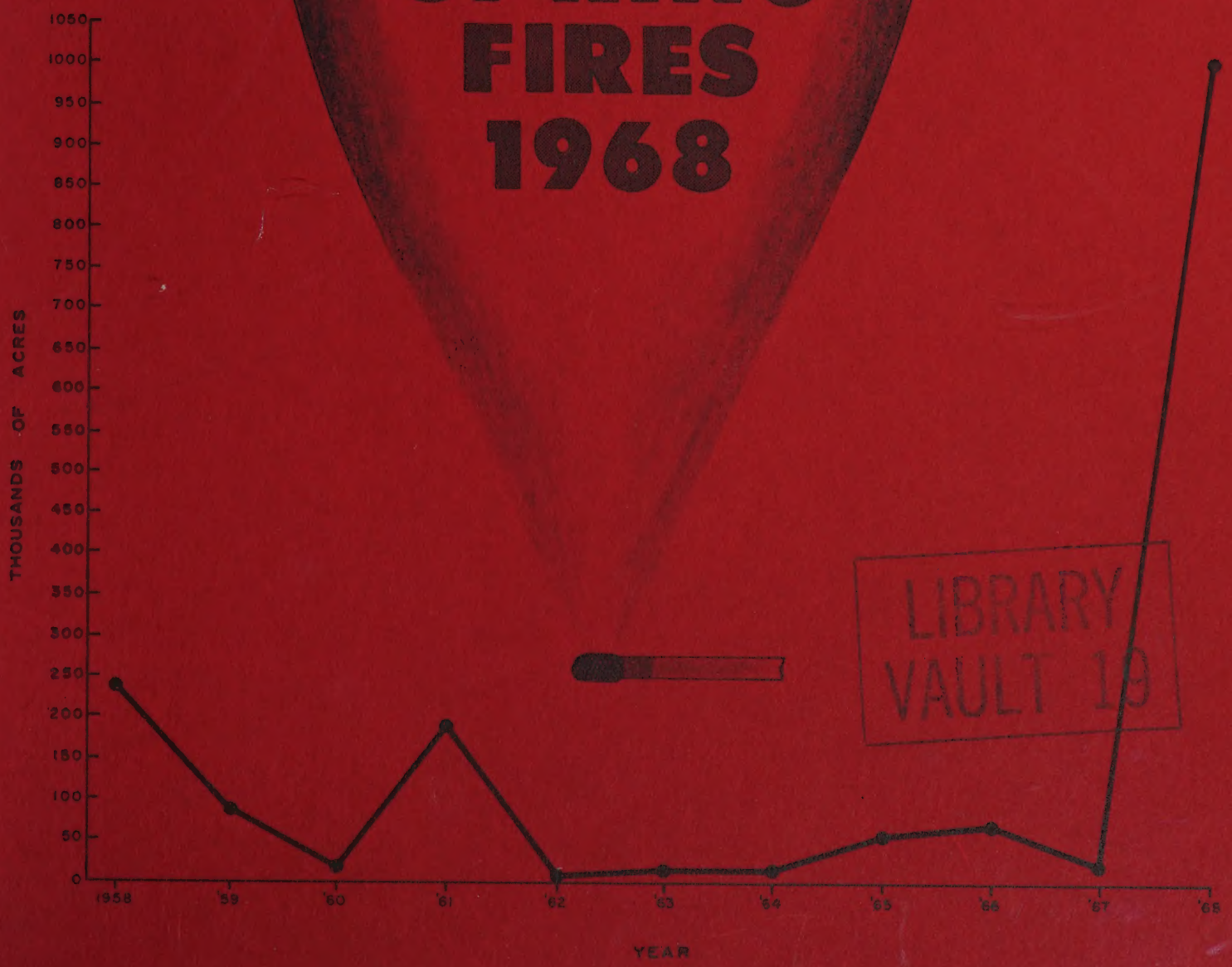
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Spring Fires, May 17-25, 1968.  
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# SPRING FIRES 1968



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## S P R I N G   F I R E S

MAY 17th - MAY 25th

1968

Forest Protection Branch  
Alberta Forest Service  
Edmonton, Alberta

March 1969

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# Special Report - Spring Fires 1968

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Number of fires from May 1968 to May 1968	106
Number of fires May 1968 to May 1968 inclusive	107
Number of fires May 1968 to May 1968	0
Total no. out of 107	107
Number of fires from May 1968 to May 1968	107
Total for 1968	107

It can be noted the number of fires between May 1968 and May 1968

is lower than that for the period up to the end of May. This

report will be based on the 107 fires which occurred between May 1968 and

May 1968 which were reported and are at the time of writing the report.

### Table 2

Table 2 - Summary of Fires May 1968 - May 1968

	Fire 1968 Period or Discovered										Total
	1	2	3	4	5	6	7	8	9	10	
Area Burnt	1	7	11	11	8	2	2	7	1		47
Volume Burnt	2	1	11	8	2	2	2	2	1		29
Value	4	1	3	2	1	1	8	2	1		23
Loss to Public	1	1	4	3	4	2	2	-	-		20
Commercial Stock	-	-	0	1	2	-	-	1	-		4
Commercial Property	-	1	2	3	0	-	1	-	-		7
Public Property	1	4	1	2	1	-	-	-	-		10
Private Property	-	1	3	3	2	-	-	-	-		10
Equipment	-	-	-	1	-	-	-	-	-		1
Total	11	15	34	30	20	12	15	13	3		153

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## Special Report - Spring Fires 1968

The year 1968 was a difficult spring fire year for the Alberta Forest Service. Lack of precipitation during the previous winter and a dry spring created a severe drought condition. Coupled with high persistent southeast winds, only ignition sources were needed to create a serious fire problem. The ignition sources were present. This is a special report on the spring fires and it will deal only with the statistical aspects of the fires.

### Fire Incidence

The fire incidence for the year 1968 is as follows:

Number of fires prior to May 17th	174
Number of fires May 17th to May 25th inclusive	185
Number of fires May 26th to May 31st	6
Total to end of May	365
Number of fires June 1st to December 31st	253
Total for 1968	618

As can be noted the number of fires between May 17th and May 25th is better than half the total for the period up to the end of May. This report will be based on the 185 fires which occurred between May 17th and May 25th since these fires burned over 99% of the total area for the year.

TABLE I  
Daily Occurrence of Fires May 17th - May 25th

Forest	May	Day fire started or discovered									Total
		17	18	19	20	21	22	23	24	25	
Slave Lake		2	2	11	11	9	1	3	7	1	47
Whitecourt		2	2	11	9	2	5	5	1	2	39
Edson		4	6	3	2	1	1	6	2	1	26
Lac La Biche		2	2	4	3	4	3	2	-	-	20
Clearwater-Rocky		-	-	9	7	2	-	-	1	-	19
Grande Prairie		-	1	2	3	6	-	1	-	-	13
Peace River		1	4	1	3	1	-	-	-	-	10
Footner Lake		-	1	3	3	3	-	-	-	-	10
Crowsnest		-	-	-	1	-	-	-	-	-	1
Total		11	18	44	42	28	10	17	11	4	185





TABLE II  
Size Class Distribution of Fires  
May 17th - May 25th

Forest	Size Class					Total
	A	B	C	D	E	
Slave Lake	12	9	9	3	14	47
Whitecourt	1	9	9	7	13	39
Edson	12	10	3	1	-	26
Lac La Biche	1	3	3	2	11	20
Clearwater-Rocky	8	3	3	2	3	19
Grande Prairie	5	3	1	-	4	13
Peace River	-	3	2	2	3	10
Footner Lake	4	4	2	-	-	10
Crowsnest	-	1	-	-	-	1
Total	43	45	32	17	48	185

One of the four fires occurring during the period became an "E" class fire. The total daily occurrence and size class distribution are combined together in the bar graph shown in Chart I.

TABLE III  
Ten Year Fire Incidence From January to May

Year	Total Number of Fires From January 1st - May 31st
1958	139
1959	249
1960	171
1961	322
1962	75
1963	98
1964	158
1965	57
1966	141
1967	130
Total	1,540
Ten year average	154
1968	365

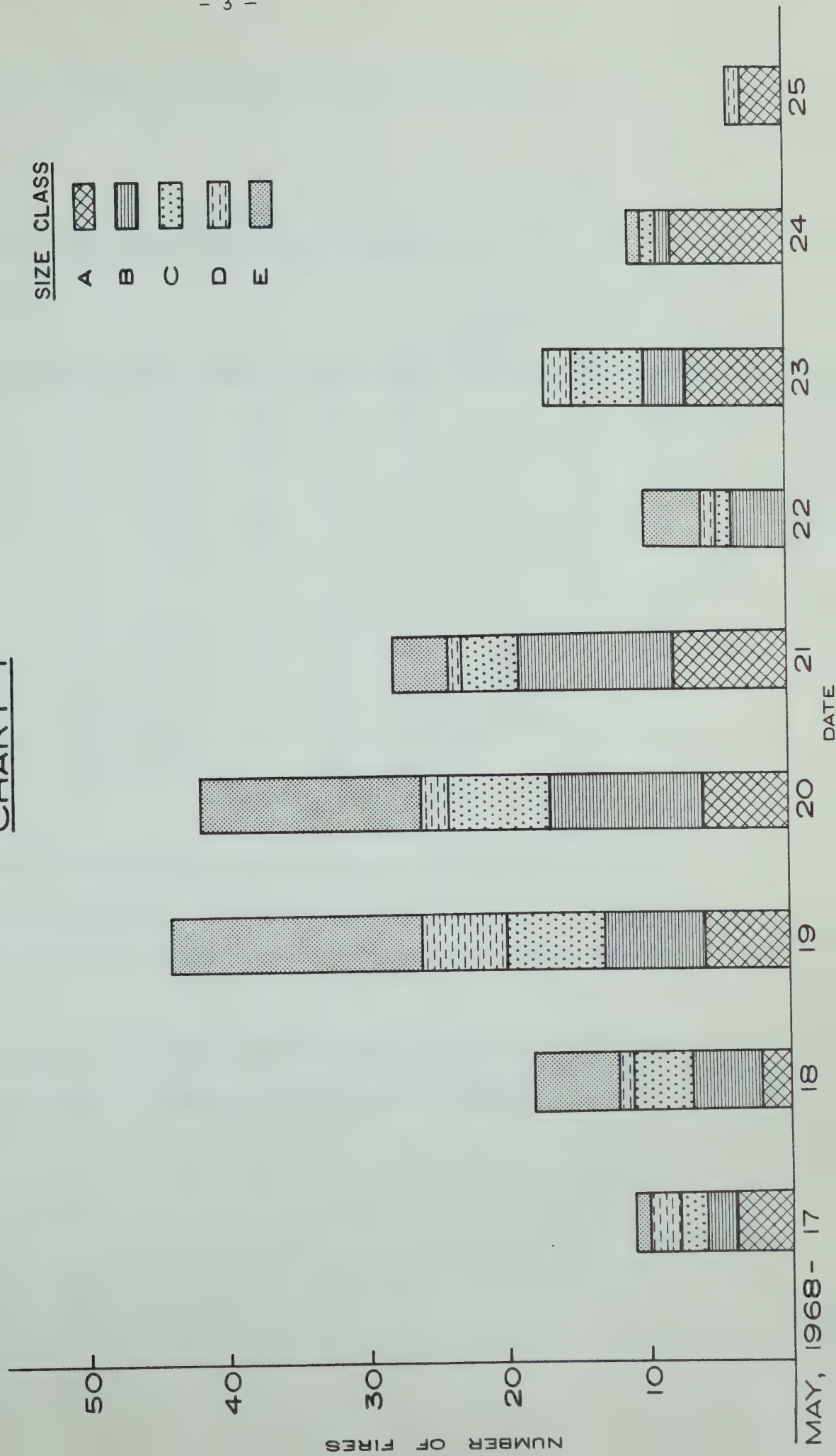
In comparing the incidence of spring fires of 1968 to previous years it has been found that the number of incidence in 1968 was much above the average of the last ten years.





# NUMBER OF FIRES BY START OR DISCOVERY DATE & BY SIZE CLASS

CHART I







Only in 1961 were there over 300 fires occurring up to the end of May.

TABLE IV  
Number of Fires by Cause May 17th - May 25th

Forest	Light.	Sett.	Incend.	Rec.	Ind.	Unusual Man- Caused	P.P.	R.R.	Uk.	Total
Slave Lake	-	24	9	2	5	7	-	-	-	47
Whitecourt	2	20	12	1	3	1	-	-	-	39
Edson	2	12	2	2	5	-	2	1	-	26
Lac La Biche	-	11	1	5	3	-	-	-	-	20
Clearwater-Rocky	2	12	2	3	-	-	-	-	-	19
Grande Prairie	6	4	1	-	-	-	2	-	-	13
Peace River	-	5	3	-	-	-	-	-	2	10
Footner Lake	-	4	-	1	2	-	3	-	-	10
Crowsnest	-	-	-	1	-	-	-	-	-	1
Total	12	91	30	15	18	8	7	1	2	185

Light. - Lightning  
Sett. - Settlement  
Incend. - Incendiary  
Rec. - Recreation  
Ind. - Industrial  
P.P. - Public Project  
R.R. - Railroad  
Uk. - Unknown

All but 14 fires were man-caused fires. One out of two fires during this period was caused by settlement burning. Actually the number of settlement fires may be more since incendiary fires are often set for the same purpose.

The origin of the fires shows that one out of two fires began on private property also. A complete list is given in Table V.





TABLE V  
Number of Fires by Property Ownership of Origin  
May 17th - May 25th

Forest	Private Property	Crown Land Protection Zone	Crown Land Non- Protection Zone	Federal Indian Reserves	Total
Slave Lake	19	22	1	5	47
Whitecourt	28	9	1	1	39
Edson	16	10	-	-	26
Lac La Biche	8	9	3	-	20
Clearwater-Rocky	12	7	-	-	19
Grande Prairie	2	8	2	1	13
Peace River	6	3	1	-	10
Footner Lake	4	5	-	1	10
Crowsnest	-	1	-	-	1
Total	95	74	8	8	185

The origin of fires shows that in 1968, May 17th - May 25th, approximately 50% of the fires started on private property.





Area Loss

TABLE VI  
Area Burned by Forest - May 17th to May 25th

<u>Forest</u>	<u>Acreage</u>
Slave Lake	491,741
Lac La Biche	241,965
Whitecourt	221,743
Clearwater-Rocky	18,716
Grande Prairie	12,036
Peace River	3,505
Edson	405
Footner Lake	144
Crowsnest	1
Total	990,256

The total acreage burned for the year 1968 is close to 1,002,000 acres. It appears from the total that 99% of the total area was burned in the early period. It also shows that 95% of the acreage was burned in three Forests, Lac La Biche, Slave Lake and Whitecourt.

TABLE VII  
Area Burned (Acres) in "E" Class Fires by Forest  
May 17th - May 25th

	<u>Crown</u>	<u>Private</u>	<u>Total</u>
<u>Whitecourt</u>			
DW 4-2	132,940	1,640	134,580
DW 4-3	20,300	7,560	27,860
DW 1-9	16,499	3,475	19,974
DW 2-10	8,124	3,706	11,830
DW 6-1	7,797	-	7,797
DW 2-13	5,619	970	6,589
DW 3-13	3,140	370	3,510
DW 2-11	1,396	362	1,758
DW 2-17	182	1,474	1,656
DW 2-20	490	822	1,312
DW 2-18	368	932	1,300
DW 1-10	160	620	780
Total	197,015	22,700	219,715



	<u>Crown</u>	<u>Private</u>	<u>Total</u>
<u>Slave Lake</u>			
DS 2-20	186,709	354	187,063
DS 3-21	77,177	10,515	87,692
DS 1-7	59,370	890	60,260
DS 1-6	27,990	31,965	59,955
DS 1-8	39,800	10,855	50,655
DS 4-25	5,745	7,915	13,660
DS 4-24	7,020	4,950	11,970
DS 4-17	-	6,500	6,500
DS 4-16	2,225	1,520	3,745
DS 1-9	2,600	590	3,190
DS 3-23	-	2,000	2,000
DS 4-19	1,170	205	1,375
DS 3-18	-	930	930
DS 4-15	-	600	600
Total	409,806	79,789	489,595

Lac La Biche

DL 3-4	93,434	160	93,594
DL 4-1	66,950	345	67,295
DL 3-6	40,055	2,400	42,455
DL 3-5	12,020	-	12,020
DL 3-7	7,740	740	8,480
DL 1-9	3,994	344	4,338
DL 2-5	3,970	125	4,095
DL 1-14	1,996	1,232	3,228
DL 4-2	1,610	1,400	3,010
DL 1-12	2,361	216	2,577
DL 2-4	340	183	523
Total	234,470	7,145	241,615

Peace River

DP 1-5	49	1,330	1,379
DP 1-7	603	172	775
DP 4-2	-	600	600
Total	652	2,102	2,754

Clearwater-Rocky

DR 7-3	7,458	2,579	10,037
DR 6-18	4,612	1,494	6,106
DR 6-16	-	1,840	1,840
Total	12,070	5,913	17,983





	<u>Crown</u>	<u>Private</u>	<u>Total</u>
<u>Grande Prairie</u>			
DG 4-1	2,598	3,448	6,046
DG 6-1	2,150	10	2,160
DG 4-2	110	1,820	1,930
DG 3-2	1,000	880	1,880
Total	5,858	6,158	12,016
Total "E" Class Fires, May 17th - May 25th			
	859,871	123,807	983,678

There was a total of 48 "E" class fires which burned 983,678 acres during the period.

Table VII also indicates that 85% of the forest burned was Crown land.

TABLE VIII  
"E" Class Fires by Size Classification  
May 17th - May 25th

<u>Acreage (Thousand Acres)</u>	<u>Number of Fires</u>
150 - 200	1
100 - 150	1
50 - 100	6
25 - 50	2
10 - 25	6
5 - 10	6
1 - 5	19
less than 1	7
Total	48

The eight largest fires which are all over 50,000 acres in size nearly constituted 75% of the total burn acreage.





TABLE IX  
Area Burned by Cause of "E" Class Fires  
May 17th - May 25th

Forest	Settlement	Recreation	Incendiary	Industry	Public Project	Unknown
Whitecourt	201,039	10,099	-	8,577	-	-
Slave Lake	383,898	91,437	14,260	-	-	-
Lac La Biche	131,906	105,614	-	4,095	-	-
Peace River	600	-	775	-	-	1,379
Clearwater-Rocky	11,877	-	6,106	-	-	-
Grande Prairie	5,970	-	-	-	6,046	-
Total	735,290	207,150	21,141	12,672	6,046	1,379

Area burned by cause of "E" class fires indicates that almost three out of four acres burned are attributable to settlement burning. Recreation as a cause resulted in the second highest total burn acreage. These two causes contributed over 90% of the total burn area for the year.

TABLE X  
Classification of Crown Land Burned in  
"E" Class Fires, May 17th - May 25th

Productive land	418,605 acres
Potentially productive	103,447 acres
Non-productive	333,825 acres
Unknown	3,994 acres
Total	859,871 acres

More than half a million acres of productive and potentially productive forest land were burned.

Classification of the areas by broad productivity loss was calculated only on Crown lands.



Volume Loss

TABLE XI  
Volume Loss "E" Class Fires  
May 17th - May 25th

<u>Forest</u>	Coniferous Saw Timber <u>MFBM</u>	Coniferous Pulpwood <u>Cords</u>	Deciduous Timber <u>Cords</u>
Slave Lake	426,606	1,623,640	3,658,264
Whitecourt	86,089	444,299	1,013,904
Lac La Biche	101,306	370,645	792,843
Clearwater-Rocky	595	3,355	57,250
Peace River	46	1,549	5,894
Total	614,642	2,443,488	5,528,155

Volume losses are only calculated on Crown lands. Since the "E" class fires of the spring period formed the major losses, these fires were the only ones considered.

It is estimated by the Forest Management Branch that of the 614,642,000 fbm. lost approximately 200 million fbm. is expected to be salvaged. Thus our net loss would be to about 400 million fbm. No estimate on salvage of pulpwood has been made. Considering only the saw timber losses, the total volume burned would more than equal one year of quota for all the timber operators in Alberta. The loss of coniferous cords in the Crown land is more than eight years of cut for a pulp mill of the size presently located in Alberta.





Value Loss

TABLE XII  
Loss of Timber Dues from Crown Lands

<u>Forest</u>	<u>\$ Saw Timber</u>	<u>\$ Softwood Pulpwood</u>	<u>\$ Deciduous Timber</u>
Slave Lake	2,559,636	1,623,640	1,646,218
Whitecourt	516,534	444,299	456,256
Lac La Biche	607,836	370,645	356,779
Clearwater-Rocky	3,570	3,355	25,762
Peace River	276	1,549	2,652
Total	3,687,852	2,443,488	2,487,667
Gross Total Loss	\$ 8,619,007		
Salvage (estimated)	600,000		
Net Loss	\$ 8,019,007		

Value losses can be calculated in many different ways. One way of appraising the loss is by only calculating the dues that would be derived from the timber if it was sold to a licensee or a lessee. Table XII shows this calculation and is based on \$6.00 per mfbm. on saw timber, \$3.00 per mfbm. on salvage, \$1.00 per cord for softwood pulpwood and \$.45 per cord for deciduous timber.

The net loss of timber dues is around eight million dollars.

Timber dues loss only is, however, an underestimation of the loss to the economy of the Province.

A more realistic valuation of the loss must be considered because labour can transform this raw material into some commodity which has a demand and can be sold.





TABLE XIII  
Estimated Economic Loss on Crown Land Fires  
May 17th - May 25th

Coniferous saw timber	641,642 mfbm. x \$60.00	=	\$38,498,520
Salvage	200,000 mfbm. x \$40.00	=	<u>8,000,000</u>
			\$ 30,498,520
Cordwood (coniferous)	2,443,488 cords x \$17.00	=	<u>41,539,296</u>
Total loss			\$ 72,037,816

There is a question of how far in the manufacturing process we should take our values. In the case of lumber we have the choice of log at the mill, green lumber at the mill or dressed lumber at a railroad siding. Since most of the lumber manufacturing costs are due to labor costs, the use of dressed lumber price at the railroad siding would not be unrealistic. According to the Forest Management Branch \$60.00 per mfbm. would be a conservative price for dressed dimension lumber at the railroad siding.

Coniferous pulpwood value was placed at \$17.00 per cord.

There is no demand for deciduous timber at the present therefore no value was placed on it.

The loss on coniferous timber amounts to over seventy million dollars.

On top of such basic timber losses are other less tangible losses which would include loss of growing stock, effect on watersheds, effects on recreation and loss of soil value. Taking all of these into account we could probably safely say that the long and short term economic loss is over one hundred million dollars.



Firefighting Operation

TABLE XIV  
Time Lapse from Start or Discovery to Control  
All Fires in Period of May 17th - May 25th

Forest	<u>Time Lapse</u>								
	Same Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	6-10 Day	11-20 Day	21+
Whitecourt	13	10	4	3	2	3	3	-	1
Slave Lake	22	11	2	1	2	-	5	2	2
Lac La Biche	6	3	2	1	1	1	1	3	2
Clearwater-Rocky	11	4	1	-	2	-	1	-	-
Edson	23	1	-	2	-	-	-	-	-
Grande Prairie	3	6	1	2	-	1	-	-	-
Peace River	4	4	2	-	-	-	-	-	-
Footner Lake	6	4	-	-	-	-	-	-	-
Crowsnest	1	-	-	-	-	-	-	-	-
Total	89	43	12	9	7	5	10	5	5
"E" Class Fires		9	5	4	5	5	10	5	5

One hundred and sixty-five of the total of 185 fires were controlled within the first five day period. In the "E" class fires 28 of the 48 fires were controlled within the first five day period. The lapse time may not be a significant factor as there was a major weather system change on May 24th and 25th which created an adverse burning condition.

TABLE XV  
Total Number of Men and Dozers and Hours Used  
"E" Class Fires, May 17th - May 25th

Forest	No. of Lineworkers Including Overhead	<u>Lineworker Hours</u>		No. of Dozers	Dozer Hours
		to Control	Mopup		
Whitecourt	1,861	54,529	112,007	188	15,783
Slave Lake	1,444	154,657	54,602	201	22,003
Clearwater-Rocky	370	7,056	5,067	30	1,402
Grande Prairie	152	4,001	8,882	16	678
Peace River	132	1,902	7,436	18	361
Lac La Biche	788	61,599	94,062	42	2,111
Total	4,747	283,774	282,056	495	42,338





TABLE XVI  
Total Number of Aircraft and Hours Used  
"E" Class Fires - May 17th - May 25th

Forest	No. of FW Aircraft Used	Total Hours	No. of Bombers Used	Total Hours	No. of Helicopters Used	Total Hours
Whitecourt	4	81	12	350	5	113
Slave Lake	4	65	10	131	27	1,686
Clearwater-Rocky	2	12	2	6	3	66
Lac La Biche	5	76	19	96	15	1,138
Grande Prairie	1	1	-	-	2	4
Total	16	235	43	583	52	3,007

Total hours all aircraft 3,825



The Cost

TABLE XVII  
Firefighting Cost by Forest - "E" Class Fires  
May 17th - May 25th

<u>Forest</u>	<u>General Firefighting Costs</u>	<u>Aircraft Costs</u>	<u>Total *</u>
Slave Lake	\$ 1,079,317.84	\$ 458,709.76	\$ 1,538,027.60
Whitecourt	1,169,055.60	208,242.10	1,377,297.70
Lac La Biche	522,476.05	321,129.60	843,605.65
Clearwater-Rocky	72,138.15	13,458.57	85,596.72
Grande Prairie	41,975.27	464.30	42,439.57
Peace River	37,867.35	588.44	38,455.79
Total	\$ 2,922,830.26	\$ 1,002,592.77	\$ 3,925,423.03

\* Cost taken from Account's records as of December 31, 1968.

The total firefighting cost for 1968 is approximately 5.5 million dollars. "E" class fires of the spring period (May 17th - May 25th) cost nearly four million dollars or better than seventy per cent of the total 1968 firefighting expenditure.

The aircraft cost is approximately 25% of the total cost.

TABLE XVIII  
Number of Fires by Broad Cost Classification

<u>Costs (Thousand Dollars)</u>	<u>No. of Fires</u>
over 500	2
400 - 499	1
300 - 399	2
200 - 299	3
100 - 199	1
50 - 99	2
25 - 49	6
10 - 24	11
less than 10	20
Total	48





TABLE XIX  
"E" Class Fires Costing \$100,000 or More to Fight

<u>Fire Number</u>	<u>General Firefighting Costs</u>	<u>Aircraft Costs</u>	<u>Total</u>
DS 2-20	\$ 406,432.80	\$ 299,351.24	\$ 705,784.04
DW 4-2	503,587.70	98,350.97	601,938.67
DL 3-4	301,444.63	159,059.40	460,504.03
DS 1-7	300,982.86	50,802.60	351,785.46
DS 3-21	236,996.36	99,653.26	336,649.62
DL 4-1	139,862.07	92,620.60	232,482.67
DW 6-1	169,083.07	57,099.42	226,182.49
DW 1-9	207,556.11	3,627.62	211,183.73
DW 2-13	84,888.77	26,322.62	111,211.39
Total	\$ 2,350,834.37	\$ 886,887.73	\$ 3,237,722.10

The above nine fires accounted for over 80% of the spring fire expenditure and nearly 60% of the total 1968 firefighting expenditures.

TABLE XX  
Fire Cost by Cause of "E" Class Fires  
May 17th - May 25th

<u>Causes of Fires</u>	<u>Cost</u>
Settlement	\$ 2,590,324.39
Recreation	968,849.99
Industrial	248,126.95
Incendiary	70,228.19
Public Project	32,053.48
Unknown	15,840.03
Total	\$ 3,925,423.03

The "E" class settlement caused fires were responsible for nearly 50% of the total 1968 fire expenditure. If we include smaller class fires the expenditure of fighting settlement caused fires would be far greater.

It would have been better if a daily breakdown of cost was kept during the spring period. This would indicate when our major costs occurred. The rapid spread of the fires possibly made any expenditure at the peak



period ineffective other than to attempt to save some private property.

From all indications the spread of the fire was terminated with the change in the weather. Looking in hindsight it appears that very little of the forest was saved even with this huge expenditure. However, this is probably true with most conflagration fires as there is usually a lag in putting this type of firefighting operation into high gear. It would appear that increased expenditure on fire prevention and presuppression would in the long run be more economical if it resulted in a lowering of suppression costs.





Comparison of the Years 1949 and 1968

The following extract is from the report of the Director of Forestry for the year 1950-51.

"It was necessary in the annual report for this division for 1949-50 to report one of the worst fire seasons ever experienced in the Province of Alberta. It was shown in the report for that year that the settler, who was dependent on the forests for much of his living caused 23.6% of the fires which covered 42.2% of the forested area burned in that year.

In the spring of 1950 it was necessary for the Department to change its policy in the handling of burning permits issued to settlers in order to avoid a repetition of this loss at the hands of the settler."

The policy of the Forest Service in 1949 was to protect only portions of the Province and did not include the areas we presently consider as Footner Lake and Athabasca Forests. In these northern areas, only the main waterways and highways were to be protected. The burned area of 1968 is all within the protection area of 1949. Thus if the activities in the Footner Lake and Athabasca Forests are deleted for 1968 we should be able to make some valid comparison.

TABLE XXI  
Comparison of 1949 and 1968 Fires

	<u>1949</u>	<u>1968</u>
Total Number of Fires	314	556
Number of "E" Class Fires	106	51
% of "E" Class Fires Started by Settlers	69	71
Total Acreage Burned	1,461,046	1,002,000
% of Burned Acreage Attributed to Settler Cause	42	70
Cost of Firefighting	\$ 250,000	\$ 5,500,000



The fixed Alberta Forest Service expenditure has increased better than ten fold. The cost of firefighting has increased better than twenty fold. Yet the problems of 1949 appear to be still with us even with this vast increase in expenditure.

The large losses in 1968 point out that the settlers fire problem is still present and must be taken more seriously. It means much more action is required in setting forth broader prevention measures of man-caused fires especially those caused by settlers. A rural fire control organization for areas outside of the "forest protection area" is required and may answer some of the problems.

An intensive public education program involving all news media and effective personal contact is necessary. If this can be accomplished the "million acre burn years" may be relegated to history.









